

PATENT COOPERATION TREATY

PCT

INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference 45.143 MUS	FOR FURTHER ACTION see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. PCT/ IB 01/ 02215	International filing date (day/month/year) 22/11/2001	(Earliest) Priority Date (day/month/year) 30/08/2001
Applicant MUSARAGNO, Marco		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 2 sheets.

It is also accompanied by a copy of each prior art document cited in this report.

1. Basis of the report

a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing :

contained in the international application in written form.

filed together with the international application in computer readable form.

furnished subsequently to this Authority in written form.

furnished subsequently to this Authority in computer readable form.

the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. **Certain claims were found unsearchable** (See Box I).

3. **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

the text is approved as submitted by the applicant.

the text has been established by this Authority to read as follows:

STOPPER FOR BOTTLING WINES

5. With regard to the **abstract**,

the text is approved as submitted by the applicant.

the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

as suggested by the applicant.

because the applicant failed to suggest a figure.

because this figure better characterizes the invention.

1

None of the figures.

INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 01/02215

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 B65D39/00

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B65D C12G C12H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category °	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	FR 2 627 467 A (MARCELLI GIUSEPPE) 25 August 1989 (1989-08-25) page 2, line 7 - line 19 page 6, line 22 -page 7, line 18; figure D	1
A	---	2,4
A	US 5 556 591 A (JALLERAT ERIC ET AL) 17 September 1996 (1996-09-17) column 4, line 60 -column 5, line 7 column 7, line 54 - line 63; figure 2 -----	1,2,4,6

 Further documents are listed in the continuation of box C. Patent family members are listed in annex.

° Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

- *T* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- *X* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- *Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- *&* document member of the same patent family

Date of the actual completion of the international search

19 February 2002

Date of mailing of the international search report

27/02/2002

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Scheuer, J

INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 01/02215

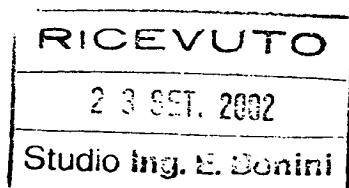
Patent document cited in search report	Publication date		Patent family member(s)	Publication date
FR 2627467	A	25-08-1989	IT 1221368 B ES 2016134 A6 FR 2627467 A1	27-06-1990 16-10-1990 25-08-1989
US 5556591	A	17-09-1996	FR 2686269 A1 DE 69211525 D1 EP 0555603 A1 ES 2088118 T3 JP 6205662 A US 5413925 A	23-07-1993 18-07-1996 18-08-1993 01-08-1996 26-07-1994 09-05-1995

PATENT COOPERATION TREATY

From the:
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

BONINI, ERCOLE
STUDIO ING. E. BONINI SRL
Corso Fogazzaro, 8
36100 Vicenza
ITALIE



PCT

WRITTEN OPINION

(PCT Rule 66)

sent by fax 19.09.02

Date of mailing
(day/month/year)

✓ 20.09.2002

Applicant's or agent's file reference 45.143 MUS	REPLY DUE	within 2 month(s) from the above date of mailing
International application No. PCT/IB01/02215	International filing date (day/month/year) 22/11/2001	Priority date (day/month/year) 30/08/2001
International Patent Classification (IPC) or both national classification and IPC B65D39/00		
Applicant MUSARAGNO, Marco		

1. This written opinion is the **first** drawn up by this International Preliminary Examining Authority.

2. This opinion contains indications relating to the following items:

- I Basis of the opinion
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain document cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

3. The applicant is hereby **invited to reply** to this opinion.

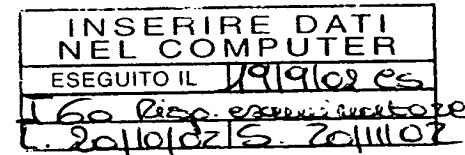
When? See the time limit indicated above. The applicant may, before the expiration of that time limit, request this Authority to grant an extension, see Rule 66.2(d).

How? By submitting a written reply, accompanied, where appropriate, by amendments, according to Rule 66.3. For the form and the language of the amendments, see Rules 66.8 and 66.9.

Also: For an additional opportunity to submit amendments, see Rule 66.4. For the examiner's obligation to consider amendments and/or arguments, see Rule 66.4 bis. For an informal communication with the examiner, see Rule 66.6.

If no reply is filed, the international preliminary examination report will be established on the basis of this opinion.

4. The final date by which the international preliminary examination report must be established according to Rule 69.2 is: 30/12/2003.



Name and mailing address of the international preliminary examining authority: European Patent Office - Gitschner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840	Authorized officer / Examiner Scheuer, J
	Formalities officer (incl. extension of time limits) Geier, A Telephone No. +49 30 25901 706



I. Basis of the opinion

1. With regard to the **elements** of the international application (Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this opinion as "originally filed"):

Description, pages:

1-5 as originally filed

Claims, No.:

1-6 as originally filed

Drawings, sheets:

1/1 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- the description, pages:
- the claims, Nos.:

the drawings, sheets:

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1
Inventive step (IS)	Claims 2
Industrial applicability (IA)	Claims

2. Citations and explanations
see separate sheet

Re Item V

Reasoned statement under Rule 66.2(a)(ii) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Reference is made to the following document

D1: FR-A-2 627 467 (MARCELLI GIUSEPPE) 25 August 1989 (1989-08-25)

2. The document D1 is regarded as being the closest prior art to the subject-matter of claim 1, and discloses the references applying to this document, see Fig. B and D:
3. A stopper 10 for closing bottles, more particularly wine bottles, at least partially made of synthetic material and having at least a generally cylindrical length to be inserted in the bottle neck, characterised by comprising at least a tubular duct 11 adapted to put the residual volume of air present inside the bottle in communication with the outer ambient through at least a membrane 12 arranged transversally to said tubular duct 11 and allowing passage of oxygen from the bottle interior to the outer ambient and vice versa.
4. The subject-matter of claim 1 is therefore not new (Article 33(2) PCT).
5. Claim 2 appears to be obvious and therefore not inventive (Article 33 (3) PCT, especially if it is undesirable to have liquid leaking out of a wine recipient with a membrane. In this case it would be obvious to employ an impermeable membrane.
This claim is also been drafted in terms of a obtained result and lacks technical features defining the matter for which protection is sought (Art. 6 and Rule 6.3 (a) PCT)
6. The combination of the features of dependent claim 3 with claim 1 and 2 is neither known from, nor rendered obvious by the available prior art. It is suggested therefore that a new independent claim be drafted to include these features, bearing in mind that the features known in claim 1 should be placed in the preamble of such a claim in accordance with Rule 6.3(b) PCT.

7. Contrary to the requirements of Rule 5.1(a)(ii) PCT, the relevant background art disclosed in document D1 is not mentioned in the description. This document D1 is to be identified therein.

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 45.143 MUS	FOR FURTHER ACTION		See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/IB01/02215	International filing date (day/month/year) 22/11/2001	Priority date (day/month/year) 30/08/2001	
International Patent Classification (IPC) or national classification and IPC B65D39/00			
Applicant MUSARAGNO, Marco			

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.

This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 3 sheets.

3. This report contains indications relating to the following items:

- I Basis of the report
- II Priority
- III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV Lack of unity of invention
- V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI Certain documents cited
- VII Certain defects in the international application
- VIII Certain observations on the international application

Date of submission of the demand 16/05/2002	Date of completion of this report 08.01.2003
Name and mailing address of the international preliminary examining authority:  European Patent Office - Gitschner Str. 103 D-10958 Berlin Tel. +49 30 25901 - 0 Fax: +49 30 25901 - 840	Authorized officer Scheuer, J Telephone No. +49 30 25901 532



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/IB01/02215

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):

Description, pages:

1,3-5	as originally filed	
2,2a	with telefax of	11/11/2002

Claims, No.:

1-6	with telefax of	11/11/2002
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Drawings, sheets:

1/1	as originally filed
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2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
- the language of publication of the international application (under Rule 48.3(b)).
- the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- contained in the international application in written form.
- filed together with the international application in computer readable form.
- furnished subsequently to this Authority in written form.
- furnished subsequently to this Authority in computer readable form.
- The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No. PCT/IB01/02215

the description, pages:
 the claims, Nos.:
 the drawings, sheets:

5. This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-6
	No:	Claims	
Inventive step (IS)	Yes:	Claims	1-6
	No:	Claims	
Industrial applicability (IA)	Yes:	Claims	1-6
	No:	Claims	

2. Citations and explanations
see separate sheet

Re Item V

Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

Document FR-A-2 627 467, which is considered to represent the most relevant state of the art, discloses

A stopper (10) for closing bottles, made of synthetic material and having a generally cylindrical length to be inserted in the bottle neck, whereby a tubular duct (11) adapted to put the residual volume of air present inside the bottle in communication with the outer ambient through a membrane (12) arranged transversely to said tubular duct 11 and allowing the passage of oxygen from the bottle interior to the outside.

For the purpose of exchanging oxygen through the stopper in both directions,

the provision of a membrane provided with microholes

remains without example in the yet available prior art.

Claim 1 therefore fulfills the requirements of the PCT regarding novelty, inventive step and is considered to be industrially applicable (Art. 33 PCT).

Claim 2 to 6 are dependent on Claim 1 and therefore considered to fulfill the requirements of the PCT regarding novelty, inventive step and industrial applicability (Art. 33 PCT).

be mould-proof and bacteria-proof, making the bottled wine exempt from cork taste.

Another advantage of the synthetic stopper is constancy of quality of said stopper, durability, flexibility and impermeability to liquids.

5 One of the limitations of the synthetic stopper is not to allow a correct exchange of oxygen with the ambient in view of its substantial impermeability. To this purpose it is to be noted that another limitation of the synthetic stopper consists in that it resists hardly the big temperature difference which a bottle of wine may undergo for instance when left temporarily in the sun, because 10 increase of volume of wine inside the bottle and the substantial impermeability of the synthetic stopper does not allow leakage of an amount of air comprised between the wine level and the bottom portion of the stopper. Consequently phenomena of stopper removal from its seat and movements of the stopper upwards or even ejection from the bottle were observed.

15 FR-A-2627467 discloses a floating cover in a vat of liquid provided with a stopper having a tubular duct having a membrane arranged transversally at the end of said duct. Said membrane allows the passage of the entrapped gasses to escape from the interior of the vat to the outer ambient.

20 The object of the invention is to provide a stopper of synthetic material overcoming the above mentioned drawbacks.

A first object of the invention is to provide a stopper of synthetic material having a certain degree of permeability so as to exchange oxygen with the ambient and allow wine contained in the bottle using said stopper to be aged and get refined.

25 Another object of the invention is to meter the exchange of oxygen through the stopper with the maximum possible precision so that a certain ageing degree for each kind of wine can be warranted thus reaching the required maximum wine quality. The object is generally to obtain a stopper of synthetic material adapted to meet every requirement according to type of wine and ageing 30 degree.

35 The above mentioned objects and others that will be better apparent in the following description are attained by a stopper to close bottles, more particularly wine bottles, that according to the main claim is at least partially made of synthetic material and has a generally cylindrical length to be inserted into the bottle neck, said stopper being characterised by having at least a

- 2a -

tubular duct adapted to put the residual volume of air inside the bottle in communication with the external ambient through at least a membrane provided with microholes and arranged transversally in said tubular duct allowing passage of oxygen from the bottle interior to the outer ambient and viceversa.

5

CLAIMS

- 1) A stopper (1) for closing bottles, more particularly wine bottles, at least partially made of synthetic material and having at least a generally cylindrical length to be inserted in the bottle neck, **characterised by**
5 comprising at least a tubular duct (2, 5, 6, 9, 10, 11, 16, 17) adapted to put the residual volume of air present inside the bottle in communication with the outer ambient through at least a membrane (3) provided with microholes and arranged transversely to said tubular duct and allowing passage of oxygen from the bottle interior to the outer ambient and viceversa.
- 10 2) The stopper according to claim 1) **characterised in that** the size of the diameter of said microholes is such as to avoid the passage of liquids.
- 3) The stopper according to claims 1) and 2), **characterised in that** said microholes of said membrane have a diameter comprised between 0.01 and 0.5 microns.
- 15 4) The stopper according to any of the preceding claims, **characterised in that** said membrane is made of a film of acrylic copolymer anchored to a support of non woven fabric.
- 5) The stopper according to any of the preceding claims **characterised in that** said membrane is fixed inside a tube (4) provided in said tubular duct.
- 20 6) The stopper according to any of the preceding claims **characterised in that** the synthetic material by which said stopper is made belongs to the group of polyethylene resins added with an expansion agent.